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\$1 beyond the greater New York metropolits

Documents Disclose Philip Morris Studied Nicotine's Effect on Body

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and GLENN COLLINS

In 15 years of previously undisclosed research, the world's largest tobacco company studied nicotine and found that it affected the body, brain and behavior of smokers. That work is at odds with arguments by the company, Philip Morris, that nicotine should not be regulated under laws applying to drugs that affect the body.

About 2,000 pages of documents obtained by The New York Times show that the company's researchers used laboratory methods that are customarily employed in assessing drugs to study the effects of nicotine on smokers, and wrote about what they described as the "pharmacologic" effects of nicotine.

Although the company has asserted that it does not manipulate the levels of nicotine in its products, the documents also show that Philip Morris studied different levels of nicotine in cigarettes to find what was pleasing to smokers.

Charles R. Wall, a Philip Morris lawyer, said yesterday that he was familiar with the documents, acknowledging they showed that the company carried out extensive research on nicotine over many years and manipulated nicotine levels in

test cigarettes. But he said the research was never used in creating products for the market.

But critics of tobacco companies say the studies described in the documents show that Philip Morris understood more completely than it had publicly acknowledged the effects of its products on smokers and had failed to disclose what it knew to customers or regulators.

The documents are coming to light as the Food and Drug Administration investigates whether nicotine should be regulated as a drug under the law. That would allow the Government to restrict the way cigarettes are made and sold. Federal law states that a substance must be regulated as a drug if the manufacturer intentionally uses it to "affect the structure or function of the body" of consumers.

The Philip Morris research on nicotine comes mostly from the company's research center in Richmond and is dated from 1966 to 1981. The documents were made available on the condition that the source not be identified other than as a person

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involved in "antismoking work."

That person said the documents, which were part of a lawsuit but had not yet been made public, came from a confidential source.

Among other things, the documents showed that college students were the subjects for much of Philip Morris's research for more than 15 years, and one study, based on a questionnaire about smoking habits in an Iowa town, included teenagers as young as 14.

Opponents have contended that the tobacco companies have long been interested in selling their products to younger people because smoking habits and brand loyalties are formed early. Mr. Wall, the Philip Morris spokesman, said the company did not aim its products at minors.

The Philip Morris files also contained information on the Federal Government, antitobacco groups and tobacco researchers, even some whose work the tobacco companies had paid for. Among that information were internal documents from the Department of Health, Education and Welfare as well as from the American Cancer Society and the National Association of Broadcasters, which was at the time opposing the F.E.W. Secretary's proposal that broadcasters be required to run antismoking messages.

Mr. Wall said he could not confirm that the documents were in the company's files without seeing them, and said that Philip Morris had long sought information about issues related to its business.

Dr. Victor DeVoe, who was a research scientist in Philip Morris's Richmond laboratories from 1980 to 1984 and is familiar with the documents, said the most crucial finding in the research was this: "The company began to realize that they could reduce the tar, but increase the nicotine, and still have the cigarette be acceptable to the smoker. After all, their work, they realized that nicotine was not just causing or stimulating, but it was having its effect centrally in the brain, and that people were smoking for brain effects — a mild high that induces craving."

Richard A. Daynard, a law professor at the Northeastern University School of Law and chairman of the Tobacco Products Liability Project, a public health advocacy group, said a public health expert group, said of the Philip Morris documents when he said of their content: "These studies are extremely important. It seems that their own documents prove they

by the reinforcing effect of the pharmacologically active components of smoke.

Among the findings in scores of studies by Philip Morris researchers was that, whatever brand people smoked, they tended to get the amount of nicotine they needed by inhaling deeper, holding the smoke longer in the mouth, or smoking more cigarettes, for example.

They also found that while there were many aspects to smoking to which companies needed to pay attention, such as difficulty of draw or the feel of the cigarette in the hand, all were built around the central desire for the "pharmacological effects" of nicotine, without which cigarettes are quickly rejected, the documents say.

Nicotine affects the brain, body and behavior, including changing heart rate, menstrual action, endocrine functions, brain waves and general arousal, the research found. In general, the many effects of smoking come from "the action of smoke components on the central nervous system," Dr. Dunn wrote.

The research results were reported regularly to high officials of Philip Morris.

Philip Morris researchers also examined whether there was an ideal level of nicotine in a cigarette, one that could be reached by altering the blend of tobacco and the way the tobacco are processed. In October 1973, a report on the nicotine-to-tar ratios in low-tar cigarettes written by three staff scientists, Barbara James, Wilke Hockett and Peggy Martin, was based on studies using the role of physiological need versus different levels of nicotine. They wrote, "This study provides evidence that the optimum nicotine-to-tar (N/T) ratio for a 19 mg tar cigarette is somewhat higher than occurring in smoke from the natural state of tobacco."

The researchers concluded the patients could become legal evidence. A consortium of nearly 60 law firms has mounted the largest class action in history, charging that the seven major tobacco manufacturers, including Philip Morris, and the Tobacco Institute, an industry group, concealed knowledge that nicotine was addictive and manipulated nicotine levels in cigarettes to keep consumers addicted.

The newly disclosed documents leave no doubt that Philip Morris researchers looked into the pharmacological effects of nicotine. One 1974 memorandum from Philip Morris's principal scientist, William L. Dunn Jr., states, "A general premise in our model of the cigarette smoker is that the smoking habit is maintained

Over the years, the researchers measured the level of nicotine in saliva before, during and after taking a puff, as well as nicotine levels in the blood of smokers. They concluded that for most smokers a low level of nicotine in the blood "triggers the smoking response," that is, a desire to light up.

They learned that smokers were not good at telling apart cigarettes by the level of tar they contained. But they were much more sensitive to nicotine levels.

In public statements, executives of Philip Morris and other tobacco companies have denied that they manipulate nicotine levels.

For example, William I. Campbell, chief executive of Philip Morris U.S.A., a unit of the Philip Morris Companies, testified along with six other tobacco company executives before the House Subcommittee on

Health and the Environment in April 1984 that "Philip Morris does not manipulate nor independently control the level of nicotine in our product."

Mr. Campbell said in his testimony: "Cigarettes contain nicotine because it occurs naturally in tobacco. Nicotine contributes to the taste of cigarettes and the pleasure of smoking."

He said that tobacco companies differentiated cigarette brands according to the amount of tar they contained. "When creating a cigarette for a tar category, we select a particular tobacco blend and flavors to provide 'uniqueness' to the product. So how do we manipulate or independently control nicotine as our critics charge? The answer is we don't. We accept the nicotine levels that result from this process."

critics say a tobacco company failed to tell of its study's findings.

1972, Dr. T. R. Schart, a company researcher, reported to Dr. Dunn, "In this study we are trying to determine what levels of nicotine delivery are realistically feasible in menthol cigarettes."

"Dr. Dunn wrote in a memo at the time that menthol cigarette tests were under way. A key test, he said, was 'designed to identify nicotine and menthol parameters which make for optimal acceptability of menthol cigarettes.'"

Critics say a tobacco company failed to tell of its study's findings.

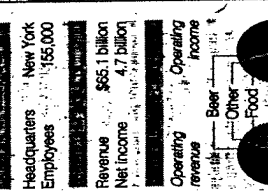
Health and the Environment in April 1984 that "Philip Morris does not manipulate nor independently control the level of nicotine in our product."

Philip Morris Companies Inc.

Headquarters: New York
Employees: 155,000

Revenue: \$65.1 billion
Net Income: 4.7 billion

Operating revenue



Basic, Benson & Hedges, Bond Street, Bristol, Cambridge, Chesterfield, Lark, L&M, Marlboro, Merit, Philip Morris, Parliament, Players, Virginia Slims

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